

ASSESSMENT OF HEALTH COSTS AND BENEFITS FOR ACTIVE TRANSPORT

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Background: There is a growing awareness that significant health and environmental benefits could be achieved by reducing car use and shifting instead to active transport. We estimate health impacts due to a shift from car to bicycling or walking.

Methods: We evaluate four effects: changes in exposure to ambient air pollution for individuals who change their transportation mode, their health benefit, health benefit for the general population due to reduced pollution, and risk of accidents. We consider only mortality in detail. For the dispersion of air pollution from cars we use results of the Transport phase of the ExternE project series and derive general results that can be applied in different regions. We calculate physical activity health benefits of bicycling and walking based on the most recent review by the World Health Organization.

Results: For a driver who switches to bicycling for a commute of 5 km (one way) 5 days/week 46 weeks/yr health benefits from physical activity are worth about 1300 €/yr, and in a large city (>500,000) the value of the associated reduction of air pollution is around 30 €/yr. For individuals who makes the switch, changes in air pollution exposure and dose implies a loss of about 20 €/yr under our standard scenario but that is highly variable and could even have the opposite sign. The results for walking are similar. Increased accident risk for bicyclists implies a loss that is an order of magnitude smaller than health benefits of physical activity. Uncertainty analyses show the order of magnitude of these estimates is robust.

Conclusion: Despite large uncertainties it can be concluded that health benefits due to physical activity is by far the most important item. We illustrate results comparing costs and benefits of the Vélib bicycle sharing program of Paris.